

this instance (though not always) the working of the tricky rule is fortunate and *Sabatia stellaris* stands.

**S. STELLARIS*, forma *ALBIFLORA* Britton. SURRY COUNTY: with and more abundant than the last, no. 12,774. See p. 522.

S. CALYCINA (Lam.) Heller. Range extended north to James River. ISLE OF WIGHT COUNTY: cypress and gum swamp back of the beach, below Rushmere (Fergusson's Wharf), no. 12,775. See p. 525.

(To be continued)

AQUATIC VARIETIES OF *POA ANNUA*

JULIAN A. STEYERMARK

A LARGE number of varieties, subvarieties, and forms of the common Low Spear Grass (*Poa annua* L.) have been described, practically all of them from European material. Ordinarily, this species is an annual-rooted plant found throughout Missouri, especially in fields, gardens, and grassy lawns of towns and cities. However, in the large cold springs of the Ozarks in southern and central Missouri, it occupies an unusual habitat and becomes an aquatic plant. In a submerged state it becomes rooted to the gravel or sand on the bottom or sides of the spring, whose water remains throughout the year at the average temperature of 52–58° F. and is always fresh and flowing. Not only do the plants growing in these spring waters become perennial, but the stems and especially the leaves become elongated, broader, and more flaccid, and the inflorescence becomes more loosely flowered and often elongated with ascending branches. Usually the plants are found in shallow swiftly running water and grow prostrate or elongate, usually parallel to the direction of flow of the current. Another unusual condition encountered is that the inflorescence is developed and anthesis proceeds even though the plant is in the submerged state. This variation in *Poa annua* occurs abundantly throughout the Ozark springs. Transitional habitats also occur, as, for example, where plants have rooted at the margins of a spring, and part of the plant is submerged, while another part of it is out of the water. In the same area a few feet away on ordinary land occur typical terrestrial plants of *Poa annua*, with shorter, firmer, and narrower leaves and culms, and more contracted inflorescences with spreading branches. In correspond-

ence with Mrs. Chase the writer learned that Mr. Swallen had growing in his garden a patch of *Poa annua* which has persisted for several years, so that evidently it is apparently easy for the ordinarily annual habit to become changed into a perennial one.

The aquatic perennating *Poa annua* of Missouri springs fits two varieties, *Poa annua* L., var. *aquatica* Aschers. and *Poa annua* L., var. *reptans* Haussknecht, described by Ascherson and Graebner in Syn. Mitteleur. Fl.¹ and by Hegi in Ill. Fl. Mittel-eur.² In the latter publication *Poa annua* L., var. *reptans* is described as with "Stengel verlängert, niederliegend, stark verzweigt, an den Knoten wurzelnd. Wahrscheinlich ausdauernd.—Selten auf feuchtem, begrastem Sandboden", while *Poa annua* L. var. *aquatica* is described "Pflanze sehr zart und schlaff, an Catabrosa aquatica erinnernd. Stengel zuweilen stark verlängert. Rispe sehr locker.—Selten an sumpfigen Stellen, zuweilen im Wasser schwimmend". Although the habitat of *Poa annua* var. *aquatica* would appear to fit that of most of the specimens from the Missouri Springs, yet the description given for *Poa annua* var. *reptans* seems to hold for the majority of the plants encountered; nevertheless, transitional specimens which might be placed in either variety occur in the Missouri material. For the sake of record, the following Missouri collections made by the writer may be given and may be found in the Herbarium of the Field Museum of Natural History.

Poa annua L., var. *aquatica* Aschers.—This is represented from Missouri by *Steyermark* 6638 from Steelville Spring, at Steelville, Crawford Co., Sept. 17, 1938.

This collection exhibits the delicate and lax habit with greatly prolonged stems characteristic of this variety.

Poa annua L., var. *reptans* Haussknecht.—This is represented from Missouri by the following collections: *Steyermark* 27938, rooting on gravel, Paydown Spring branch at Paydown, Maries Co., Aug. 12, 1939; *Steyermark* 21938, submerged in Mill Spring, Wayne Co., April 28, 1939; *Steyermark* 23030, spring branch of Ike Raines Spring, tributary to Swan Creek, T 26 N, R 19 W, sect. 34, 3½ mi. southeast of Chadwick, Christian Co., July 6, 1937; *Steyermark* 4643, Slabtown Spring, T 33 N, R 10 W, sect. 15, 5 mi. south of Edanville, Texas Co., April 13, 1937; *Steyermark* 21229, submerged in water of Reeds Spring, T 32 N, R 1 E, sect. 28, ½ mi. east of Centerville, Reynolds Co., March 21,

¹ Ascherson, P. and P. Graebner, Synopsis der Mitteleuropäischen Flora 2: 388–389. 1921.

² Hegi, G. Illustrierte Flora von Mittel-Europa 1: 302. 1908.

1937; *Steyermark* 21159, Wilkins Spring, T 36 N, R 9 W, S $\frac{1}{2}$ SE $\frac{1}{4}$ sect. 17, 7 mi. southwest of Newburg, Phelps Co., Feb. 6, 1937; *Steyermark* 21246, in water of Big Spring, T 26 N, R 1 E, sect. 6, 4 mi. southeast of Van Buren, Carter Co., March 21, 1937; *Steyermark* 4659, Thomasson Mill Spring, $\frac{1}{4}$ mi. from "The Narrows" near mouth of Fredericks Fork, between Calm and Myrtle, T 22 N, R 2 W, sect. 16, Oregon Co., April 11, 1937; *Steyermark* 21173, Roubidoux Spring, near Waynesville, T 36 N, R 12 W, along highway 17, Pulaski Co., Feb. 28, 1937; and *Steyermark* 4538, submerged in Chesapeake Spring, in T 28 N, R 25 W, SW $\frac{1}{4}$ SW $\frac{1}{4}$ sect. 21, at Chesapeake, Lawrence Co., April 19, 1937.

FIELD MUSEUM OF NATURAL HISTORY,
Chicago.

ANOTHER MASSACHUSETTS STATION FOR *SERAPIAS HELLEBORINE*.—While botanizing on August 6, 1941, on Mount Greylock, I walked down from the summit to the Bellows Pipe and then followed the bed of Notch Brook northward, down stream. Fifty minutes after leaving the Bellows Pipe I came upon a plant, growing at the water's edge, with the habit of a *Habenaria* but with a saccate lip. It proved to be *Serapias Helleborine* L. It was 59 cm. high with a spike 15 cm. long bearing 26 flowers. There was a second smaller stem which had been somewhat injured but which bore several flowers. This I took for a record specimen. I later left the bed of the brook and came back to the Bellows Pipe by way of the trail west of the brook. Some 50 feet to the right (west) of the trail, where it emerges from the woodland into the open weedy pasture of the Bellows Pipe, I came upon another specimen of *Serapias* (in the woodland) which was of the same height as the first one but with a spike 20 cm. long bearing 29 flowers. The plants were probably a third or perhaps a half mile apart and far—miles probably—from any habitation and with no drainage from a habitation. The specimens I found were growing in the town of Adams. A few days later I found another good sized specimen in full flower at the mouth of the Inner Hopper on the west side of Greylock, this location being in Williamstown. John Osmun, son of Prof. A. V. Osmun, head of our Department of Botany, tells me that in woodland in the northern part of Pittsfield, just east of Pontoosuc Lake, "*Serapias* grows by the thousand."—ARTHUR K. HARRISON, Massachusetts State College.

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